

REMARKS

Claim 15 has been cancelled without prejudice. Claim 33 has been added. Claims 16 through 33 are now pending in this application.

In paragraph 3 of the office action, claims 17 - 20, 22, 23 and 29 were objected to because of informalities. Claims 17 - 20, 22, 23 and 29 have been accordingly amended to overcome the examiner's objection. The amendments are not narrowing amendments.

Claims 15, 16, 21, 22 and 24 - 28 were rejected under 35 U.S.C 103(a) as being unpatentable over Lebby et al. (U.S. Patent 5,367,593), hereinafter Lebby.

Claim 33 has been added incorporating some of the features recited in claim 5.

Claim 15 has been deleted without prejudice. Claims 16, 21, 22 and 24 - 28 have all been amended to depend from newly added claim 33.

Claim 33 recites that the connector laser diodes (on the IC chip) formed in a predetermined arrangement from a gallium arsenide substrate and deposited on the IC chip by transfer from an intermediate support that maintains the predetermined arrangement and that the connector defines a base unit link.

Lebby fails to disclose or suggest the features recited in claim 33. Lebby et al. discloses a optical/electrical connector (25) having a base (27), an array of photonic components, each having an optical port (45) and electrical terminals (38). An IC chip (50), which is disclosed as a chip or a board with one or more chips, is positioned in well (30) of base (27) connected to terminals (38) with solder bumps. Electrical terminals of array (45) are disclosed as connected to terminals (38) or directly to IC chip (50).

Nowhere in Lebby is there a disclosure or suggestion of laser diodes formed in a predetermined arrangement from a gallium arsenide substrate and deposited on the chip by transfer from an intermediate support that maintain the predetermined arrangement as claimed in the present invention. Instead, Lebby merely discloses that array (45) may be directly connected to chip (50) (see column 3, lines 25 - 30 and column 4, lines 40 - 46) without any disclosure or suggestion of how the array is directly connected to the chip. However, there are many ways in which the array (45) may be directly connected to the chip. For example, the array may be directly connected to the chip by using a printed circuit board or hybrid circuit (as disclosed in col. 3, lines 25-29 of Lebby). This, or the bare disclosure in Lebby of a mere direct connection between the optical array and IC chip 50 is not the same as what is called for in claim 33. Nor is the disclosure in col. 4, lines 42-43 in Lebby that photonic components can be formed directly on IC chip 50 (which can be a PCB or hybrid chip) the same as what is called for in Claim 33. Claim 33 calls for laser diodes formed in a predetermined arrangement from a GaAs substrate and deposited on the IC chip by transfer from an intermediate support that maintains the predetermined arrangement. This provides a

connector that is structurally different from what is disclosed in Lebby. As described in the specification of the present application, on page 4, lines 18-21 where "the direct transfer (i.e. with the intermediate support that maintains the predetermined arrangement of the diodes) makes it possible to overcome the need for a printed circuit or a hybrid circuit which, in the prior art, enables the association of the laser diodes and the various electronic circuits needed to make them work". Indeed, it would appear from col. 3, lines 25-29, that the IC chip 50 in Lebby is a printed circuit board or hybrid circuit (thereby allowing photonic components to be formed on the IC chip, col. 4, lines 42-43). Thus, the Lebby connector has the exact structure overcome by the connector called for in Claim 33. The claimed features enables use of an IC chip with laser diodes thereon without having to use a printed circuit or hybrid circuit structure (as disclosed in Lebby), which results tighter tolerances, lack of damage to other components on the chip from thermal or structural stress that may occur with conventional techniques of forming photonic components on a chip. Thus, the features called for in claim 33 provide a connector structurally different from Lebby. The features of claim 33 are neither disclosed nor suggested nor made obvious by Lebby et al. (U.S. Patent 5,367,593). Accordingly, claim 33 is patentable over Lebby et al. (U.S. Patent 5,367,593).

For the reasons set forth above, the features of claim 33 are neither disclosed nor suggested by Lebby et al. (U.S. Patent 5,367,593) either alone or in combination. Accordingly, claim 33 patentable over Lebby et al. (U.S. Patent 5,367,593). Claims 16, 21, 22 and 24 - 28 all depend from claim 33. Accordingly, claims 16, 21, 22, 24 - 28 and 33 are patentable over Lebby et al. (U.S. Patent 5,367,593).

In paragraph 7 of the office action, claims 17 - 20 and 23 were objected to as being dependent upon a rejected base claim but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and rewritten to overcome the informalities set forth in paragraph 3 of the office action. Claims 17 and 23 have been rewritten in independent form including all of the limitations of the base claim 15. This is not a narrowing amendment. Claims 18 - 20 all depend upon claim 17. Claims 17 - 20 and 23 have been rewritten to overcome the informalities set forth in paragraph 3 of the office action. This is not a narrowing amendment. Accordingly, claims 17 - 20 and 23 are ready for allowance.

In paragraph 8 of the office action, claims 29 - 32 were indicated to be allowable if rewritten to overcome the informalities set forth in paragraph 3 of the office action. Claim 29 has been rewritten to overcome the informalities set forth in paragraph 3 of the office action. This is not a narrowing amendment. Claims 30 - 32 all depend upon claim 29. Accordingly, claims 29 - 32 are patentable.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,



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8/7/03

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